

## PRESS RELEASE

For immediate release: 4th July 2022

Research: Tales of a heavy heart: the risks associated with heart disease

### **4th, July Tokyo: In a study recently published in *European Heart Journal*, researchers at Juntendo University reveal the major predictors and outcomes of an underdiagnosed cardiovascular condition**

The human heart is susceptible to a range of maladies. Cardiac sarcoidosis (CS) is one such condition wherein the body's immune cells accumulate in the heart. This causes it to beat irregularly, culminating in heart failure. CS is often found to be underdiagnosed with confounding data on the characteristics, risk factors, and outcomes of the disease. To bridge this medical gap, a research team led by Takeru Nabeta at Kitasato University, Takeshi Kitai at National Cerebral and Cardiovascular Medicine, and Yuya Matsue at Juntendo University have conducted a clinical investigation to understand the prognosis of CS better.

The researchers performed a retrospective study, meaning they closely analyzed past records (from 2001 to 2017) of patients with CS across 33 different hospitals in Japan. Patients were included based on one of two standard diagnostic guidelines for CS, 512 patients.

The first aim was to identify the incidence of a range of likely health outcomes resulting from CS. While death, hospitalization due to heart failure, and irregular heartbeats (medically known as fatal ventricular arrhythmia events or FVAEs) were assessed individually, a combination of all three was considered the main outcome. It was found that 148 of the 512 patients had suffered a combination of all within less than 3 years of diagnosis. This was followed by 99 cases of FVAEs, 56 cases of heart failure hospitalizations, and 49 deaths—33 of these deaths were due to cardiovascular malfunction.

Upon a long-term analysis of 10 years post diagnosis, 48% of patients were likely to suffer all three outcomes, 32% were found to be likely to suffer only FVAEs, followed by a 21% rate for heart failure hospitalizations, and 18% for death. Furthermore, these outcomes did not differ between patients who were diagnosed for CS using either of the two guidelines.

The team then delved deeper into patient data to find clinical characteristics that might help predict the main outcome of the study. Four characteristics were of significance: a history of tachycardia (an exceptionally high heart rate) or fibrillation (quivers in the heart muscle), the presence of heart chemicals in the brain (BNP), an increase in the volume of blood pumped by the heart (LVEF), and the use of heat treatment (RFCA) for tachycardia.

“Although mortality is relatively low in cardiac sarcoidosis, adverse events are common, mainly due to fatal ventricular arrhythmia events,” concludes the team. The high-risk populations identified here further bridges the gap between the diagnosis and prognosis of CS. Timely treatment strategies can be initiated and disease progression monitored keeping these risks in mind.

## Background:

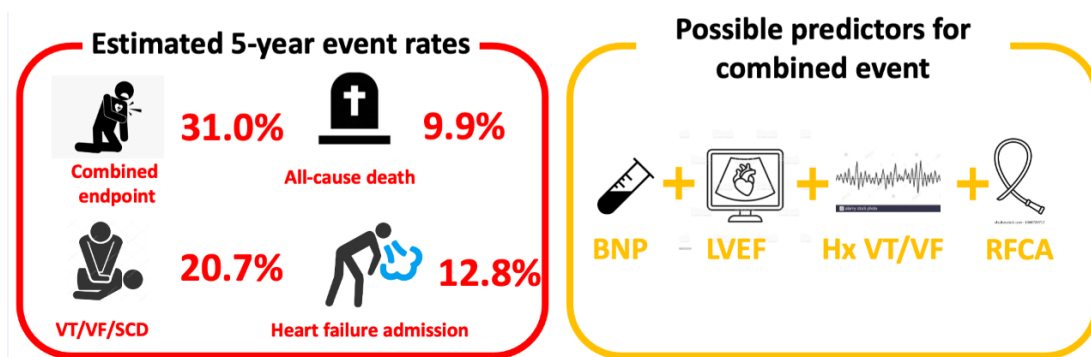
Cardiac sarcoidosis (CS): Sarcoidosis is an inflammatory condition that affects many organs of the body. CS is a subtype of sarcoidosis that has an incidence rate much higher than clinically reported. CS results from an abnormal functioning of the body's immune response that leads to granular deposits in the heart muscle. These deposits strain the muscle and cause it to work overtime. Symptoms of CS include chest pain, irregular heartbeats, and palpitations.

Treatment for CS includes managing the immune system as well symptoms of the disease. Thus, an accurate estimate of the symptoms and underlying risk factors play a major role in managing the disease effectively.

Fatal ventricular arrhythmia events (FVAEs): FVAEs is an umbrella term for different types of heartbeat irregularities observed clinically. These are observed in the lower portion of the heart that is responsible for pumping blood to the body. Types of FVAEs include an exceptionally high beating rate (ventricular tachycardia or VT) and twitches/quivers in the lower portions of the heart (ventricular fibrillation or VF). FVAEs can also lead to sudden cardiac death (SCD) when the heart muscle is fatigued and stops beating. FVAEs occur in several heart conditions and timely diagnosis and intervention are crucial in preventing cardiac death.

## Reference:

Nabeta T, Kitai T, Naruse Y, Taniguchi T, Yoshioka K, Tanaka H, Okumura T, Sato S, Baba Y, Kida K, Tamaki Y, Matsumoto S, Matsue Y. Risk stratification of patients with cardiac sarcoidosis: the ILLUMINATE CS registry. *Eur Heart J*. 2022; doi: 10.1093/eurheartj/ehac323, <https://academic.oup.com/eurheartj/article-lookup/doi/10.1093/eurheartj/ehac323>



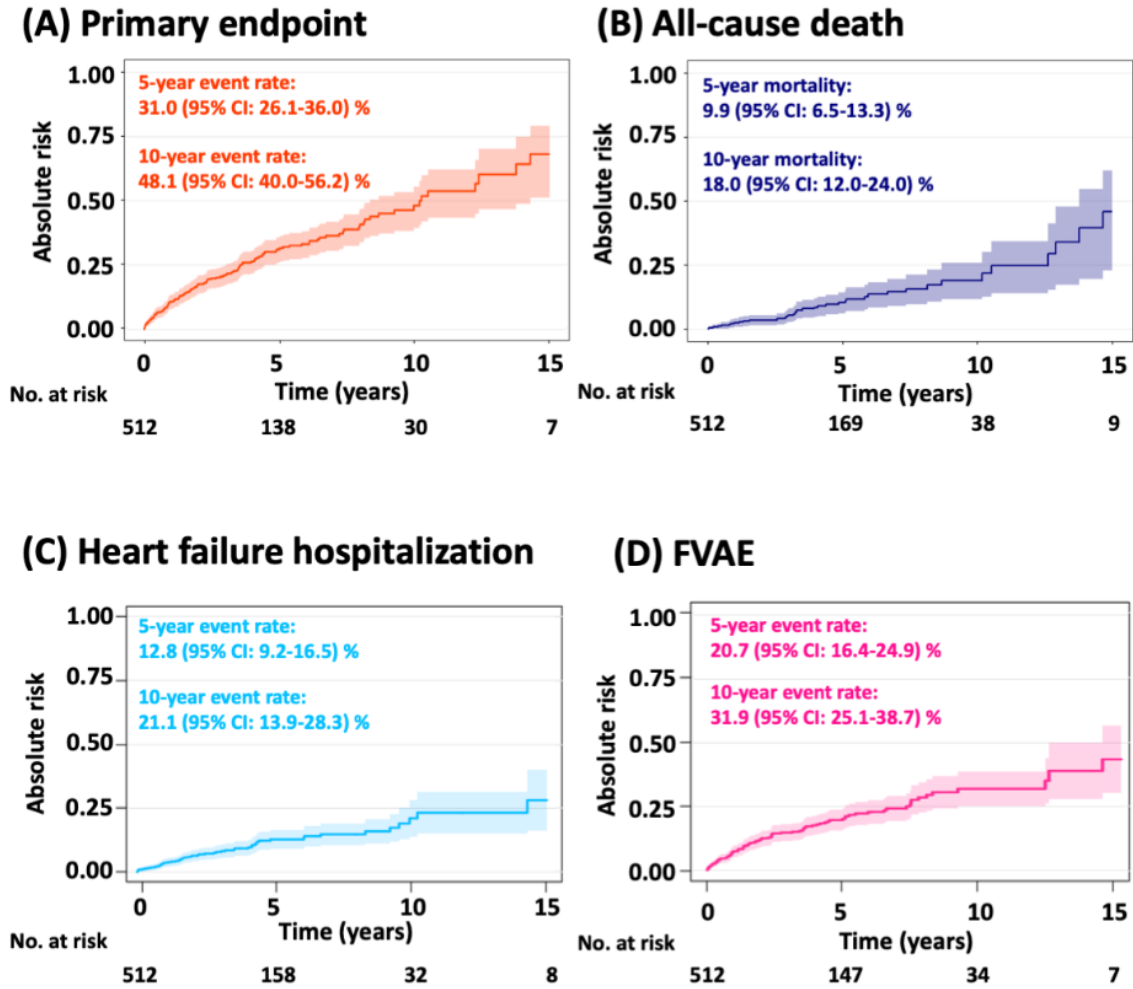


Figure 1. *Top.* A graphical representation of the 5-year event rates of possible outcomes and predictors of the combined outcome of CS.

*Bottom.* 5-year and 10-year risks of the combined outcome (primary endpoint) and individual outcomes of the 512 patients assessed.